



DFW 1743#

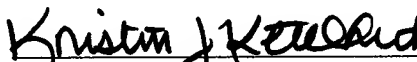
DOCKET NO.: C0989.70017US00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Chan et al.  
Serial No.: 09/875,779  
Confirmation No.: 6905  
Filed: June 6, 2001  
For: METHODS AND APPARATUS FOR  
CHARACTERIZATION OF SINGLE POLYMERS  
Examiner: Jan M. Ludlow  
Art Unit: 1743

**CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)**

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to MAIL STOP AMENDMENT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 1 day of October, 2004.

  
Kristin J. Ketellor

**MAIL STOP AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**STATEMENT FILED PURSUANT TO THE DUTY OF  
DISCLOSURE UNDER 37 CFR §§1.56, 1.97 AND 1.98**

Sir:

Pursuant to the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, the Applicant requests consideration of this Information Disclosure Statement.

**PART I: Compliance with 37 C.F.R. §1.97**

This Information Disclosure Statement has been filed more than three months after the filing date of this application and after the mailing date of the first Office Action, but before the mailing date of either a final action under 37 C.F.R. §1.113 or a Notice of Allowance under 37 C.F.R. §1.311, or an action that otherwise closes prosecution in this application.

The fee of \$180 as set forth in 37 C.F.R. §1.17(p) is enclosed.

10/05/2004 CNGUYEN 00000032 09875779

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PART II: Information Cited

The Applicant hereby makes of record in the above-identified application the information listed on the attached form PTO-1449 (modified). The order of presentation of the references should not be construed as an indication of the importance of the references.

The Applicant hereby makes the following additional information of record in the above-identified application.

The Applicant would like to bring to the Examiner's attention the following co-pending applications that may contain subject matter related to this application:

<u>Docket No.</u>	<u>Serial No.</u>	<u>Filing Date</u>	<u>Inventor(s)</u>
*C0989.70023US01	10/821,664	April 9, 2004	Fuchs et al.
*C0989.70037US00	10/762,207	January 21, 2004	Nadel
*C0989.70045US01	10/763,567	January 23, 2004	Gilmanshin et al.
*C0989.70046US01	10/898,712	July 23, 2004	Neely et al.
*C0989.70049US01	10/773,084	February 5, 2004	Zhao et al.
*C0989.70053US01	10/924,146	August 23, 2004	Gilmanshin
*C0989.70055US01	10/910,253	August 2, 2004	Chan

\*a copy of this reference is not provided as the Office hereby waives the requirement under 37 CFR 1.98(a)(2)(iii) for submitting a copy of each cited U.S. patent application filed after June 30, 2003 and for applications filed before June 30, 2003, or that entered the national stage before June 30, 2003, if they are scanned to Image File Wrapper system and are available on Private PAIR

The Applicant would like to bring to the Examiner's attention the enclosed search report from a corresponding International or Foreign National Application.

<u>Docket No.</u>	<u>Serial No.</u>	<u>Mailing Date</u>	<u>Type of Communication(s)</u>
C0989.70030WO00	PCT/US00/22253	27 December 2000	International Search Report
C0989.70030WO00	PCT/US00/22253	5 July 2001	Written Opinion
C0989.70030WO00	PCT/US00/22253	17 January 2002	International Preliminary Examination Report
C0989.70017WO00	PCT/US02/17124	23 May 2003	Written Opinion
C0989.70017WO00	PCT/US02/17124	13 November 2003	International Preliminary Examination Report

PART III: Remarks

Documents cited anywhere in the Information Disclosure Statement are enclosed unless otherwise indicated. It is respectfully requested that:

1. The Examiner consider completely the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims;
- 830155.1

2. The enclosed form PTO-1449 be signed by the Examiner to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application;

3. The citations for the information be printed on any patent which issues from this application.

By submitting this Information Disclosure Statement, the Applicant makes no representation that a search has been performed, of the extent of any search performed, or that more relevant information does not exist.


By submitting this Information Disclosure Statement, the Applicant makes no representation that the information cited in the Statement is, or is considered to be, material to patentability as defined in 37 C.F.R. §1.56(b).

By submitting this Information Disclosure Statement, the Applicant makes no representation that the information cited in the Statement is, or is considered to be, in fact, prior art as defined by 35 U.S.C. §102.

Notwithstanding any statements by the Applicant, the Examiner is urged to form his own conclusion regarding the relevance of the cited information.

An early and favorable action is hereby requested.

Respectfully submitted,  
*Chan et al., Applicant*

By:   
\_\_\_\_\_  
Maria A. Trevisan, Reg. No. 48,207  
Wolf, Greenfield & Sacks, P.C.  
600 Atlantic Avenue  
Boston, Massachusetts 02210-2206  
Telephone: (617) 646-8000

Docket No.: C0989.70017US00  
Date: October 1, 2004  
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Kristin J. Ketelhut

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MAIL STOP AMENDMENT

Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Transmitted herewith are the following documents:

- Information Disclosure Statement
- PTO Form 1449 with cited references
- Return Receipt Postcard

If the enclosed papers are considered incomplete, the Mail Room and/or the Application Branch is respectfully requested to contact the undersigned at (617) 646-8000, Boston, Massachusetts.

A check in the amount of \$180 is enclosed to cover the filing fee. If the fee is insufficient, the balance may be charged to Deposit Account 23/2825. A duplicate of this sheet is enclosed.

Respectfully submitted,  
*Chan et al., Applicant*

By:



Maria A. Trevisan, Reg. No.: 48,207  
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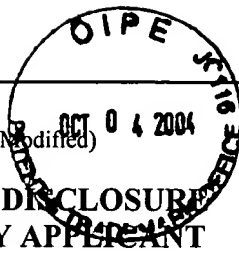
FORM PTO-1449/A and B (Modified)  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>				APPLICATION NO.: 09/875,779		ATTY. DOCKET NO.: C0989.70017US00	
				FILING DATE: June 6, 2001		CONFIRMATION NO.: 6905	
				APPLICANT: Chan et al.			
				GROUP ART UNIT: 1743		EXAMINER: Jan M. Ludlow	
Sheet	1	of	3				

#### U.S. PATENT DOCUMENTS

Examiner's Initials	Cite No.	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication or of issue of Cited Document MM-DD-YYYY
		Number	Kind Code		
	A8	5,846,832	A1	Oefner et al.	12-08-1998
	A9	6,210,896	B1	Chan	04-03-2001
	A10	6,355,420	B1	Chan	03-12-2002
	A11	6,403,311	B1	Chan	06-11-2002
	A12	6,696,022	B1	Chan et al.	02-24-2004
	A13	6,762,059	B2	Chan et al.	07-13-2004
	A14	6,772,070	B2	Gilmanshin et al.	08-16-2004
	A15	2002-0039737	A1	Chan et al.	04-04-2002
	A16	2002-0110818	A1	Chan	08-15-2002
	A17	2002-0119455	A1	Chan	09-29-2002
	A18	2002-0187508	A1	Wong	12-12-2002
	A19	2002-0197639	A1	Shia et al.	12-26-2002
	A20	2003-0059822	A1	Chan et al.	03-27-2003
	A21	2003-0215864	A1	Gilmanshin et al.	11-20-2003
	A22	2003-0235854	A1	Chan	12-25-2003
	A23	2004-0009612	A1	Zhao et al.	01-15-2004
	A24	2004-0053399	A1	Gilmanshin	03-18-2004
	A25	2004-0166025	A1	Chan et al.	08-26-2004
	*	5,851,769		Gray et al.	12-22-1998
	*	5,846,724		Bensimon et al.	12-08-1998
	*	5,840,862		Bensimon et al.	11-24-1998
	*	5,837,115		Austin et al.	11-27-1998
	*	5,707,797		Windle	01-13-1998
	*	5,599,664		Schwartz	02-04-1997
	*	5,427,663		Austin et al.	06-27-1995
	*	5,079,169		Chu et al.	01-07-1992

#### FOREIGN PATENT DOCUMENTS

Examiner's Initials	Cite No.	Foreign Patent Document			Name of Patentee or Applicant of Cited Document (not necessary)	Date of Publication of Cited Document MM-DD-YYYY	Translation (Y/N)
		Office/Country	Number	Kind Code			
	B12	WO	02/099398	A1	U.S. Genomics, Inc.	12-12-2002	
	B13	WO	02/101095	A1	U.S. Genomics, Inc.	12-19-2002	
	B14	WO	02/101353	A2	U.S. Genomics, Inc.	12-19-2002	
	B15	WO	03/025540	A2	U.S. Genomics, Inc.	03-27-2003	
	B16	WO	03/091455	A1	U.S. Genomics, Inc.	11-06-2003	
	B17	WO	03/100101	A1	U.S. Genomics, Inc.	12-04-2003	
	B18	WO	2004/007692	A2	U.S. Genomics, Inc.	01-22-2004	
	B19	WO	2004/048514	A2	U.S. Genomics, Inc.	06-10-2004	



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	B20	WO	2004/066185	A1	U.S. Genomics, Inc.	08-05-2004	
	*	WO	97/06278		Simon	02-20-1997	
	*	WO	93/22463		IG Lab Inc.	11-11-1993	
	*	EP	0391674		Carnegie Institute of Washington	10-10-1990	

# **OTHER ART — NON PATENT LITERATURE DOCUMENTS**

Examiner's Initials	Cite No	Include name of the author (in CAPITAL LETTERS) title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, relevant page(s), volume-issue number(s), publisher, city and/or country where published.	Translation (Y/N)	
	C89	BAKAJIN et al., Electrohydrodynamic stretching of DNA in confined environments. Phys Rev Lett. 1998 Mar 23; 80(12): 2737-40.		
	*	FISHER88, Fisher Scientific catalog (1988), p. 861.		
	*	AUSTIN et al., Stretch genes. Physics Today. 1997; 50:32-8.		
	*	AUSTIN et al., Electrophoresis and microlithography. Analysis. 1993; 21: 235-8.		
	*	BENSIMON et al., Stretching DNA with a receding meniscus: Experiments and models. Phys Rev Lett. 1995 Jun 5;74(23):4754-4757.		
	*	BENSIMON et al., Alignment and sensitive detection of DNA by a moving interface. Science. 1994 Sep 30;265(5181):2096-8.		
	*	BUSTAMANTE et al., Entropic elasticity of lambda-phage DNA. Science. 1994 Sep 9;265(5178):1599-600.		
	*	CHOU et al., A microfabricated device for sizing and sorting DNA molecules. Proc Natl Acad Sci U S A. 1999 Jan 5;96(1):11-3.		
	*	CHU et al., Laser manipulation of atoms and particles. Science. 1991; 253: 861-6.		
	*	CLUZEL et al., DNA: an extensible molecule. Science. 1996 Feb 9;271(5250):792-4.		
	*	DEEN et al., Analysis of Transport Phenomena, Oxford University Press; NY. 1998: 275-8.		
	*	DUKE et al., Microfabricated sieve for the continuous sorting of macromolecules. Phys Rev Lett. 1998; 80: 1552-5.		
	*	ERTAS et al., Lateral separation of macromolecules and polyelectrolytes in microlithographic arrays. Phys Rev Lett. 1998; 80: 1548-51.		
	*	GRANDBOIS et al., How strong is a covalent bond? Science. 1999 Mar 12;283(5408):1727-30.		
	*	HARRISON et al., Capillary electrophoresis and sample injection systems integrated on a planar glass chip. Anal Chem. 1992; 64: 1926-32.		
	*	HATFIELD et al., Dynamic properties of an extended polymer in solution. Phys Rev Lett 1999; 82: 3548-51.		
	*	HOUSEAL et al., Real-time imaging of single DNA molecules with fluorescence microscopy. Biophys J. 1989 Sep;56(3):507-16.		
	*	JACOBSON et al., Fused quartz substrates for microchip electrophoresis. Anal Chem. 1995; 67: 2059-63.		
	*	KABATA et al., Visualization of single molecules of RNA polymerase sliding along DNA. Science. 1993 Dec 3;262(5139):1561-3.		
	*	KIM et al., Intermediates in the folding reactions of small proteins. Annu Rev Biochem. 1990;59:631-60. Review.		
	*	LYON et al., Confinement and detection of single molecules in submicrometer channels. Anal Chem. 1997; 69: 3400-5.		
	*	MARKO et al., DNA under high tension: overstretching, undertwisting, and relaxation dynamics. Physical Rev. 1998; E27: 2134-49.		
	*	MARKO et al., Stretching DNA. Macromolecules. 1995; 28: 8759-70.		

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Sheet	3	of	3		

	*	PARRA et al., High resolution visual mapping of stretched DNA by fluorescent hybridization. Nat Genet. 1993 Sep;5(1):17-21.		
	*	PERKINS et al., Direct observation of tube-like motion of a single polymer chain. Science. 1994 May 6;264(5160):819-22.		
	*	SCHMALZING et al., DNA sequencing on microfabricated electrophoretic devices. Anal Chem. 1998; 70: 2303-10.		
	*	SCHMALZING et al., DNA typing in thirty seconds with a microfabricated device. Proc Natl Acad Sci U S A. 1997 Sep 16;94(19):10273-8.		
	*	SCHWARTZ et al., Ordered restriction maps of Saccharomyces cerevisiae chromosomes constructed by optical mapping. Science. 1993 Oct 1;262(5130):110-4.		
	*	SEILER et al., Planar glass chips for capillary electrophoresis: repetitive sample injection, quantitation and separation efficiency. Anal Chem. 1993; 65: 1481-8.		
	*	SMITH et al., Single-polymer dynamics in steady shear flow. Science. 1999 Mar 12;283(5408):1724-7.		
	*	SMITH et al., Response of flexible polymers to a sudden elongational flow. Science. 1998 Aug 28;281(5381):1335-40.		
	*	SMITH et al., Direct mechanical measurements of the elasticity of single DNA molecules by using magnetic beads. Science. 1992 Nov 13;258(5085):1122-6.		
	*	TAN et al., Nanoscale imaging and sensing by near-field optics. in <i>Fluorescence Imaging; Spectroscopy and Microscopy</i> . Wang and Herman, Eds., Chemical Analysis Series 137: 407-75.		
	*	VOLKMUTH et al., DNA electrodiffusion in a 2D array of posts. Phys Rev Lett. 1994; 72: 2117-20.		
	*	VOLKMUTH et al., DNA electrophoresis in microlithographic arrays. Nature. 1992 Aug 13;358(6387):600-2.		
	*	WASHIZU et al., Applications of electrostatic stretch-and-positioning of DNA. IEEE Trans Industry Applications. 1990; 26: 1165-72.		
	*	WOOLLEY et al., Ultra-high-speed DNA fragment separations using microfabricated capillary array electrophoresis chips. Proc Natl Acad Sci U S A. 1994 Nov 22;91(24):11348-52.		
	*	ZIMMERMANN et al., DNA stretching on functionalized gold surfaces. Nucleic Acids Res. 1994 Feb 11;22(3):492-7.		

EXAMINE R	DATE CONSIDERED
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#EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.

\*a copy of this reference is not provided as it was previously cited by or submitted to the office in a prior application, Serial No. 09/636,793, filed August 11, 2000, and relied upon for an earlier filing date under 35 U.S.C. 120 (continuation, continuation-in-part, and divisional applications).

[NOTE - The Office hereby waives the requirement under 37 CFR 1.98 (a)(2)(i) for submitting a copy of each cited U.S. patent and each U.S. patent application publication for all U.S. national patent applications filed after June 30, 2003 and for all international applications that have entered the national stage under 35 USC 371 after June 30, 2003. See 37 CFR 1.491(b). For all patent applications filed on or before June 30, 2003, copies of cited U.S. patents and patent application publications are still required unless an eIDS is filed. Copies of all other patent(s), publication(s), or other information listed must still be provided, even if it was previously submitted to, or cited by, the U.S. Patent Office in an earlier application, unless the earlier application is identified by the IDS and is relied upon for an earlier filing date under 35 U.S.C. §120, and the copy was provided in the earlier application.]